CLAIMS

[00122] What is claimed is:

1. A varactor comprising:
a channel having a length significantly larger than a minimum operable length of said channel.

2. The varactor of claim 1, wherein the length of the channel is at least thirty percent larger than said minimum length.

3. The varactor of claim 1, wherein the length of the channel is at least fifty percent larger than said minimum length.

4. The varactor of claim 1, wherein the length of the channel is not more than one hundred percent larger than the minimum operable length of the channel.

5. The varactor of claim 1, wherein the varactor comprises a Positive-charged-carrier Metal-Oxide-Semiconductor varactor.

6. The varactor of claim 1, wherein the varactor comprises a Negative-charged-carrier Metal-Oxide-Semiconductor varactor.

7. The varactor of claim 1, comprising an accumulation mode varactor.

8. The varactor of claim 1, comprising an inversion mode varactor.

9. An apparatus comprising:
an oscillator having a tunable charge-pump.

10. The apparatus of claim 9, comprising a gain tuner to tune the gain of said tunable charge-pump.

11. The apparatus of claim 10, wherein said gain tuner is able to tune the gain of said tunable charge-pump in response to a property of said oscillator.

12. The apparatus of claim 11, wherein said gain tuner is able to tune the gain based on a value related to a gain of at least a portion of said oscillator.

13. The apparatus of claim 12, wherein said gain tuner is able to tune the gain based on a value related to a gain of a voltage controlled oscillator of said oscillator.

14. The apparatus of claim 12, comprising a detector to detect said value.

15. The apparatus of claim 14, wherein said detector is able to substantially continuously detect said value.

16. The apparatus of claim 9, wherein said tunable charge-pump comprises at least one tunable current source to modify the gain of said tunable charge-pump.

17. The apparatus of claim 9, wherein the tunable charge-pump comprises at least one dummy branch to receive current.

18. The apparatus of claim 9, wherein the tunable charge-pump comprises at least one switch transistor to switch the charge-pump current.

19. The apparatus of claim 9, wherein the tunable charge-pump comprises at least two mirror sub-circuits.

20. The apparatus of claim 9, wherein the tunable charge-pump comprises a leak current path to turn-off a mirror sub-circuit.

21. The apparatus of claim 9, wherein the tunable charge-pump is differential.

22. A wireless communication device comprising:
a dipole antenna to send and receive wireless signals; and
a varactor comprising a channel having a length significantly larger than a minimum operable length of said channel.

23. The wireless communication device of claim 22, wherein the length of said channel is at least thirty percent larger than said minimum length.

24. The wireless communication device of claim 22, wherein the length of said channel is at least fifty percent larger than said minimum length.

25. The wireless communication device of claim 22, wherein the length of said channel is not more than one hundred percent larger than the minimum operable length of said channel.

26. A wireless communication device comprising:
a dipole antenna to send and receive wireless signals; and
an oscillator having a tunable charge-pump.

27. The wireless communication device of claim 26, comprising a gain tuner to tune the gain of said tunable charge-pump.

28. The wireless communication device of claim 27, wherein said gain tuner is able to tune the gain of said tunable charge-pump in response to a property of said oscillator.

29. The wireless communication device of claim 28, wherein said gain tuner is able to tune the gain based on a value related to a gain of at least a portion of said oscillator.

30. The wireless communication device of claim 26, wherein said tunable charge-pump comprises at least one tunable current source to modify the gain of said tunable charge-pump.

31. The wireless communication device of claim 26, wherein the tunable charge-pump comprises at least one dummy branch to receive current.

32. The wireless communication device of claim 26, wherein said tunable charge-pump comprises a leak current path to turn-off a mirror sub-circuit of said tunable charge-pump.

33. The wireless communication device of claim 26, wherein the tunable charge-pump is differential.

34. A method comprising:
tuning a gain of a charge-pump of an oscillator.

35. The method of claim 34, wherein tuning the gain comprises tuning the gain based on a value related to a gain of at least a portion of said oscillator.

36. The method of claim 35, wherein tuning the gain comprises tuning the gain based on a value related to a gain of a voltage controlled oscillator of said oscillator.

37. The method of claim 36, comprising detecting said value.

38. The method of claim 37, comprising substantially continuously detecting said value.

39. The method of claim 34, wherein tuning the gain comprises transferring current to a dummy branch.

40. The method of claim 34, wherein tuning the gain comprises turning off at least one mirror sub-circuit.

41. The method of claim 34, wherein tuning the gain comprises tuning a gain of a differential charge-pump.